

CLAIMS

1. A method for providing quality of service (QoS) guarantee, wherein the method comprises the steps of:

- 5 A. creating a service traffic flow classification table;
 B. establishing a plurality of label switching paths;
 C. configuring the attributes of the label switching paths;
 D. classifying and conditioning the service traffic flows
entering into a core network at a downlink interface of an edge router
10 according to the service traffic flow classification table;
 E. forwarding the processed service traffic flows by an uplink
interface of the edge router according to the attributes of the label
switching paths.

- 15 2. The method according to claim 1, wherein the step A comprises
the steps of:

- A1. obtaining service traffic flow information;
 A2. creating the service traffic flow classification table
according to the obtained service traffic flow information.

20

3. The method according to claim 2, wherein the step A1 is:
configuring the service traffic flow information statically.

4. The method according to claim 2, wherein the step A1 is:
25 directly obtaining the service traffic flow information from a
service control equipment.

5. The method according to claim 2, wherein the step A1 is:
indirectly obtaining the service traffic flow information from the
30 service control equipment through resource control.

6. The method according to claim 1, wherein the step B is:

configuring the label switching paths statically at the uplink interfaces of the edge router.

7. The method according to claim 1, wherein the step B is:
5 establishing the label switching paths dynamically via constraint-routing label distribution protocol (CR-LDP) or resource reservation protocol-traffic engineering (RSVP-TE).

8. The method according to claim 1, wherein the step B further
10 comprises the step of:

constructing an edge-to-edge label switching path concatenated pipe or a virtual multi-protocol label switching network on the core network by using the label switching paths.

9. The method according to claim 1, wherein the step C is:
15 configuring traffic class, priority, QoS class, bandwidth attribute of the label switching paths by traffic planning and traffic engineering statistics.

10. The method according to claim 1, wherein the service traffic
20 flow classification table comprises:

service traffic flow identification, priority, QoS class, bandwidth requirement, and path information.

11. The method according to claim 10, wherein the step D comprises
25 the steps of:

D1. obtaining the service traffic flow identification;

D2. looking up the service traffic flow classification table
according to the service traffic flow identification;

30 D3. classifying and conditioning the service traffic flows entering into the core network according to the corresponding service

traffic flow information in the service traffic flow classification table.

12. The method according to claim 11, wherein the step D3 comprises
5 the steps of:

D31. classifying and marking the service traffic flows according to the corresponding priority and QoS class;

D32. shaping and policing the service traffic flows according to the corresponding bandwidth requirement;

10 D33. selecting the forwarding mode of the service traffic flows according to the corresponding path information.

13. The method according to claim 12, wherein the forwarding mode of the service traffic flow comprises:

15 best-effort delivery in accordance with network protocols;

delivery through the corresponding label switching paths of this class of traffic.

14. The method according to claim 13, wherein the step E comprises:

20 E1. steering the service traffic flow to the egress router of the Internet via network protocols when the best-effort delivery in accordance with network protocols is selected as the forwarding mode of the service traffic flow;

25 E2. steering the service traffic flow to the egress router of the Internet through the label switching path concatenated pipe or the virtual multi-protocol label switching network when the delivery through the corresponding label switching path of this class of traffic is selected as the forwarding mode of the service traffic flow.

30

15. The method according to claim 1, wherein the method further comprises the step of:

F. modifying the service traffic flow classification table according to change of the service traffic flow when the service traffic flow is changed.

16. The method according to claim 2, wherein the step F comprises:

obtaining and adding the service traffic flow information of a session into the service traffic flow classification table when the session is established;

canceling the service traffic flow information of the service session from the service traffic flow classification table when the session is ended.

17. An apparatus for providing quality of service (QoS) guarantee, wherein the apparatus comprises:

a service traffic flow information obtaining means, for creating a service traffic flow classification table;

a label switching path establishing means, for establishing a plurality of label switching paths;

a label switching path configuring means, for configuring the attributes of the label switching paths;

a first performing means, for classifying and conditioning service traffic flows entering a core network according to the service traffic flow classification table; and

a second performing means, for forwarding the processed service traffic flows according to the attributes of the label switching paths.

18. An edge router based on the means of claim 17 for providing quality of service (QoS) guarantee, comprises a configuration

management interface, wherein the edge router further comprises:

a service traffic flow information obtaining means, for creating a service traffic flow classification table;

5 a label switching path establishing means, for establishing a plurality of label switching paths;

a label switching path configuring means, for configuring the attributes of the label switching paths;

a first performing means, for classifying and conditioning the service traffic flows entering into the core network according to the service traffic flow classification table; and

10 a second performing means, for forwarding the processed service traffic flow according to the attributes of the label switching paths.

15 19. A system based on the edge router of claim 18 for providing quality of service (QoS) guarantee, comprises a service control equipment, a resource control equipment, and an edge router, wherein the edge router comprises:

20 a service traffic flow information obtaining means, for creating a service traffic flow classification table;

a label switching path establishing means, for establishing a plurality of label switching paths;

a label switching path configuring means, for configuring the attributes of the label switching paths;

25 a first performing means, for classifying and conditioning the service traffic flows entering into the core network according to the service traffic flow classification table; and

30 a second performing means, for forwarding the processed service traffic flow according to the attributes of the label switching paths.